

1/2 017 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--A STUDY OF THE ACTIVITY OF ANTILYMPHOID SERA IN THE CULTURE OF
LYMPHOCYTES IN THE PERIPHERAL BLOOD OF MAN -U-
AUTHOR-(04)-GOVALLO, V.I., GRIGORYEVA, M.P., KOPELYAN, I.I., KOSMIADI,
G.A.
COUNTRY OF INFO--USSR
SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 69,
NR 4, PP 82-85
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BLOOD SERUM, LYMPHOCYTE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/1579

STEP NO--UR/0219/70/069/004/0082/0085

CIRC ACCESSION NO--AP0106325

UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--02JCT70

CIRC ACCESSION NO--AP0106325

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ACTIVITY OF DIFFERENT HETEROLOGOUS ANTILYMPHOID SERA WAS STUDIED IN THE CULTURE OF HUMAN LYMPHOCYTES IN VITRO. IT IS SHOWN THAT DIFFERENT IMMUNE ANTISERA HAVE THEIR CHARACTERISTIC SPECTRUM OF ACTION IN THE MONOCULTURE OF LYMPHOCYTES, MANIFESTING IN A VARYING DEGREE THE LEUKOAGGLUTINATING, CYTOTOXIC AND BLAST TRANSFORMING EFFECT. IN A MIXED CULTURE OF LYMPHOCYTES ANTILYMPHOID SERA CAUSED BOTH STIMULATION AND INHIBITION OF THE REACTION OF BLAST TRANSFORMATION IN COMPARISON WITH THE REACTION OF NATIVE LYMPHOCYTES.

UNCLASSIFIED

Organ and Tissue Transplantation

USSR

UDC: 616.71-089.843-07

GOVALLO, V.I., Doctor of Medical Sciences, VOLKOV, M.V., Corresponding Member Academy of Sciences USSR, and BELOPSHIY, S.M., Central Scientific Research Institute of Traumatology and Orthopedics

"Bone Homotransplantation as a Biomedical Problem"

Leningrad, Vestnik Khirurgii imeni, I.I. Grekov, No 2, 1970, pp 103-106

Abstract: Immunological response of recipients of transplanted homologous bone is discussed on the basis of the author's observations and literature data. A historical analogy with kidney transplantation development is made. Unlike skin or kidney transplantations, the immunological reaction of a recipient of bone graft tissue appears about a year after surgery; this is probably due to anatomical properties of the bone graft, its vascularization, and preservation sequelae. At the same time, clinical signs of rejection may be noted in x-rays. Immunological selection of donors for bone grafts is strongly recommended, together with immunosuppressive treatment (using antilymphocyte serum), because too many of the attempts ended up in rejection of the bone-articular and articular homografts.

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Acc. Nr.: AP0031628

Ref. Code: UR 0219

PRIMARY SOURCE: Byulleten' Eksperimental'noy Biologii i
Meditsiny, 1970, Vol 69, Nr 1, pp 80-83

A STUDY INTO REACTIVITY OF LYMPHOID CELLS CULTURE OF THE HUMAN
FETUS IN VITRO

Govallo, V.I.; Grigor'yeva, M.P.; Kopelyan, I.I.

Central Scientific-Research Institute of Traumatology and Orthopedics

The ability of the thymic and splenic cells of 16-28 week old human fetuses to undergo morphological transformation in a mixed culture and under the effect of non-specific stimulators of blastogenesis was studied. As evidenced, the intensity of the blast-transformation reaction in a mixed lymphocyte culture of adults was directly related to the degree of antigenic distinctions of the cells cultivated. In a mixed culture and in the presence of stimulators the embryonal splenic cells underwent differentiation identical to that in lymphoid cells (lymphocytes, thymocytes) of adults. Thymic cells in fetuses of the same age were unable to undergo morphological transformation in similar experimental conditions.

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REEL/FRAME

19891755

α MK

Space Biology

USSR

UDC 591.488.4-135.044:597.82

VINNIKOV, Ya. A., GAZENKO, O. G., TITOVA, L. K., GOVARDOVSKIY, V. I., GRIBAKIN, F. G., BRONSHTEYN, A. A., PEVZNER, R. A., ARONOVA, M. Z., MASHINSKIY, A. L., PAL'MBAKH, L. R., IVANOV, V. P., TSIRULIS, T. P., KHARKEYEVICH, T. A., and PYATKINA, G. A., Laboratory of Evolutional Morphology, Institute of Evolutionary Physiology and Biochemistry imeni I. M. Sechenov, Academy of Sciences USSR, Leningrad

"Development of the Vestibular Apparatus (Labyrinth) of the Frog *Rana temporaria* in Weightlessness"

Leningrad, Zhurnal Evolyutsionnoy Biokhimii i Fiziologii, Vol 8, No 3, May/Jun 72, pp 343-350

Abstract: To study the effect of weightlessness on development of vertebrate vestibular apparatus, 43-hour artificially fertilized *Rana temporaria* eggs were subjected to a 40-hour flight in the Soyuz-10, after which they were fixed and observed with an electron microscope. Embryos in the early gastrula stage were used to ensure that takeoff acceleration was experienced prior to establishment of definitive vestibular apparatus, in light of evidence that acceleration does have considerable impact on receptor cell development at the later stages. Normal development proceeded to the tail bud stage during

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USSR

VINNIKOV, Ya. A., et al., Zhurnal Evolyutsionnoy Biokhimii i Fiziologii, Vol 8, No 3, May/Jun 72, pp 343-350

the flight, as it did in control embryos, and no differences were detected in development of the presumptive otocysts and the eighth ganglion. Morphology is described in detail, the main feature being the beginning of differentiation of receptor and support cells in the presumptive otocysts and of bipolar neuroblasts in the eighth ganglion. Thus weightlessness has no effect on development in general and on differentiation of the future vestibular apparatus in frog embryos.

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1/2 024

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--THE CLINICAL PICTURE OF THE POSTCHOLECYSTOECTOMIC SYNDROME AND
HEALTH RESORT TREATMENT THEREOF -U-

AUTHOR--GOVENKO, G.I.

COUNTRY OF INFO--USSR

SOURCE--TERAPEVICHESKIY ARKHIV, 1970, VOL 42, NR 6, PP 98-101

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LIVER DISEASE, INTESTINAL DISEASE, RADIOGRAPHY, DIAGNOSTIC
MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1918

STEP NO--UR/0504/70/042/006/0098/0101

CIRC ACCESSION NO--AP0129267

UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0129267

ABSTRACT/EXTRACT--(U) OF-O- ABSTRACT. THE PRESENT ARTICLE GIVES THE ANALYSIS OF CLINICAL INVESTIGATION OF 200 PATIENTS WITH CHOLECYSTECTOMY.

TWO GROUPS WERE DISTINGUISHED: THE 1ST INCLUDED PATIENTS WITH COMPLICATIONS ASSOCIATED WITH SURGICAL TREATMENT; 110, WITH DISEASES OF THE ALIMENTARY TRACT. A DETAILED DESCRIPTION IS GIVEN OF THE MAIN CLINICAL MANIFESTATIONS POSTCHOLECYSTECTOMY SYNDROME WITH LABORATORY AND RADIOLGICAL CHARACTERISTICS. IMMEDIATE AND REMOTE RESULTS OF THE COMPLEX HEALTH RESORT TREATMENT IN PATIENTS WITH POSTCHOLECYSTECTOMIC SYNDROME WERE STUDIED.

FACILITY:
GASTROENTEROLOGICHESKOYE OTDELENIYE YESSENTUKSKOY PYATIGORSKOGO
INSTITUTA KURORTOLOGII I FIZIOTERAPII.

UNCLASSIFIED

Water Treatment

USSR

UDC 628.165.003.1

GOVERT, A. A.

"Technical-Economical Analysis of the Performance of Single-Stage Ejectors at a Distillation Plant of the Krasnovodsk Thermoelectric Power Station"

Moscow, Vodosnabzheniye i Sanitarnaya Tekhnika, No 5, 1972, pp 6-11

Abstract: A method for a technical-economical analysis based on the practical example of single stage steam jet ejectors of the industrial experimental distillation plant of the Krasnovodsk Thermoelectric Power Station has been reported. This method makes it possible to evaluate thermodynamic improvements in the single stage steam ejector equipment, plan their modernization and, with known expenditures on heat and electric energy, carry out technical-economical comparisons of the single stage steam ejector equipment with other vacuum operated equipment such as water circulating vacuum pump. It has been shown that the work of Krasnovodsk equipment - the single stage steam jet ejector without the use of water stream exergy coming of the condenser is not economical due to large losses of the exergy in the condenser. These losses may be lowered by decreasing the differences in the temperature of the heat carriers with concurrent utilization of the exergy of a water stream coming out of the condenser.

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USSR

UDC: None

GOVOR, G. A. and SIROTA, N. N.

"Investigating the Magnetic Transition in Manganese Arsenide Under Light Pulses"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, vol 16, No 3, 1972, pp 137-140

Abstract: This letter describes experiments performed to investigate the change in the magnetism of manganese arsenide subjected to 3.5-msec pulses generated by an IFK-500 lamp with an energy of about 500 joules. The coil of an electromagnet was wound directly around a core abutting the specimen, which was a plate measuring 20X10X1 mm. Also wound on the same core is an output winding wired to the input terminals of an oscillograph. The shape of the light pulse and the corresponding pulse appearing on the oscillograph screen are shown and compared, and a curve for the change in specimen magnetization under illumination as a function of the temperature is plotted. A sketch of the experimental apparatus is reproduced. The authors are associated with the Institute of Solid State and Semiconductor Physics, Belorussian Academy of Sciences.

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USSR

UDC: 539.144.3

GROSHEV, I. V., GOVOR, I. I., DEMIDOV, A. M., Institute of Atomic Energy
imeni I. V. Kurchatov

"De-excitation of Even-Odd Germanium Nuclei After Capture of Thermal
Neutrons"

Moscow, Izv. AN SSSR, Ser. Fiz., Mat. XXII Yezhegod. soveshch. po yadern.
spektroskopii i strukture atom. yadra, Kiev, 25-28 yanv. 1972, Vol 36, No
4, Apr 72, pp 833-841

Abstract: The paper presents the results of measurement of the gamma
spectra of radiation capture of thermal neutrons by germanium isotopes
with atomic numbers of 70, 72, 74, and 76. The measurements were done on
the IRT-M reactor at the Atomic Energy Institute imeni Kurchatov, using
artificial quartz and bismuth filters. AI-2048 and AI-4096 analyzers
were used. The results are tabulated and compared with data in the
literature. The energy-level diagrams of the four isotopes are given.
Three figures, five tables, bibliography of thirteen titles.

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1/2 038

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--USE OF A GERMANIUM DETECTOR FOR NEUTRON RADIATION ANALYSIS OF THE
CONTENT OF ELEMENTS AND NEUTRONS -U-

AUTHOR-(03)-DEMIDOV, A.M., GOVOR, L.I., IVANOV, V.A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, ATOMNAYA ENERGIYA, VOL 28, NO 2, FEB 70, PP 115-120

DATE PUBLISHED-----70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY, PHYSICS, EARTH SCIENCES AND
OCEANOGRAPHY

TOPIC TAGS--NEUTRON RADIATION, RADIATION DETECTOR, GERMANIUM, GAMMA
SPECTRUM, GEOLOGY, THERMAL NEUTRON, NUCLEAR REACTOR/(U)IRTM NUCLEAR
REACTOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1999/1615

STEP NO--UR/0089/70/023/002/0115/0120

CIRC ACCESSION NO--AP0123461

UNCLASSIFIED

2/2 038

. UNCLASSIFIED

PROCESSING DATE--23OCT70

CTRC ACCESSION NO--AP0123461

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPECIAL FEATURES AND ADVANTAGES OF ELEMENT AND ISOTOPE ANALYSIS WITH THE USE OF A GE(LI) DETECTOR ACCORDING TO THE GAMMA SPECTRA OF RADIATION CAPTURE OF THERMAL NEUTRONS IN SPECIMENS IS CONSIDERED. THE RESULTS OF ANALYSES OF SOME GEOLOGICAL SAMPLES AND MATERIALS (DURAL, COPPER NICKEL ALLOY, SAND DAY MIXTURE, CALCITE, ZIRCONIUM, APATITE, MONACITE, SCHEELITE, GYPSUM, ND AND BA ISOTOPES) CONDUCTED ON THE THERMAL NEUTRON BEAM FROM THE IRT-M REACTOR OF THE ATOMIC ENERGY INSTITUTE IMENI I. V. KURCHATOV, ARE PRESENTED AND DISCUSSED.

UNCLASSIFIED

USSR

GROSHEV, L. V., GOVOR, L. I., DEMIDOV, A. M., and RAKHIMOV, A. S., Institute of Atomic Energy ~~Academy~~ I. V. Kurchatov

"Spectra of Gamma-Rays and Schematics of Xe^{130} and Xe^{132} Levels from the Reaction (n, γ) "

Moscow, Yadernaya Fizika, Vol 13, No 6, Jun 71, pp 1129-1134

Abstract: Using a spectrometer with a Ge(Li)-detector, the authors measure gamma rays arising during the capture of heated neutrons in a natural mixture of xenon isotopes and a sample enriched with Xe^{129} . They determine the energies and intensities of the gamma lines extracted from the spectra. On the basis of the data obtained they compile schematics of the gamma transitions of even-even Xe^{130} and Xe^{132} nuclei to levels lying below approximately 4.5 MeV. Unlike previous spectrometers, the one described in this article permits detecting a greater number of intense gamma rays. Solid XeF_2 and $Xe^{129}F_2$ were used as the target. A table is given showing the isotopic composition of an Xe^{129} sample. Two schematics are included showing the gamma transitions of the Xe^{130} and Xe^{132} nuclei. In separate sections the authors describe these schematics in detail and discuss previous research in the same field. The article contains one table, two figures, and a bibliography of 12 titles.

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Nitrogen Compounds



UDC 547.821.824.07:542.953

USSR

PROSTAKOV, N. S., Kholdarova, T., Pleshakov, V. G., Govor, S. Ys., and
Shalimov, V. P., University of People's Friendship Imeni Patrice Lumumba,
Moscow

"Condensation of 1,2,5-trimethylpiperidone-4 With Ethyl- and Naphtyl-
acetylenes and Synthesis of Substituted Pyridines"

Riga, Khimiya Geterotsiklicheskikh Soyedinenii, No 3, Mar 73, pp 349-352

Abstract: 1,2,5-Trimethylpiperidone-4 condensed under conditions of Favorskii
reaction with 1-butyne, α - and β -naphtylacetylene yields 4-(1-butynyl)- and
4-naphtylethynyl-1,2,5-trimethylpiperidols-4, which after hydrogenation over
Raney nickel gave 4-n-butyl-, 4-(2 α -naphtylethyl)- and 4-(2 β -naphtylethyl)-
piperidols-4. These piperidols can be converted to pyridine bases by de-
hydration, catalytic dehydrogenation and N-demethylation. In this fashion
2,5-dimethyl-4-phenylpyridine was obtained from 1,2,5-trimethyl-4-phenyl-
piperidience. Condensation of 2,5-dimethyl-4-phenylpyridine with formalde-
hyde yields 5-methyl-2-(β -hydroxyethyl)-4-phenylpyridine and 2-(5-methyl-4-
phenylpyridyl-2)-propanediol-1,3. The first product was converted to the
urethane N-phenyl- β -(5-methyl-4-phenylpyridyl-2)ethylcarbamate and dehydrated
to 5-methyl-2-vinyl-4-phenylpyridine. 2,5-Dimethyl-4-n-butylpyridine
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USSR

PROSTAKOV, N. S., et al., Khimiya Geterotsiklicheskikh Soyedinenii, No 3, Mar 73, pp 349-352

condensed with formaldehyde gave 5-methyl-2-(β -hydroxyethyl)-4-n-butylpyridine which was dehydrated to 5-methyl-2-vinyl-4-n-butylpyridine. Two derivatives of this β -hydroxyethyl compound were prepared: N-phenyl- β -(5-methyl-4-n-butylpyridyl-2)ethylcarbamate and 5-methyl-2-(β -benzoyloxyethyl)-4-n-butylpyridine.

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UDC 77

USSR

LYLIKOV, K. S., YAROSLAVSKAYA, N. N., GOVORKOV, L. P.

"Certain Features of the Stabilization of Ammonialess High-Dispersion Emulsions"

Uspekhi nauchn. fotogr. (Advances in Scientific Photography), 1970, Vol. 14, pp 97-103 (from RZh-Fizika, No 12(I), Dec 70, Abstract No 12D1328)

Translation: In the development of especially high dispersion, homogeneous ammonialess emulsions of the EVR-1000 type ($d \approx 0.03 \mu$), there arose the question of its stabilization. A basic difficulty in the stabilization of such an emulsion is in preventing the recrystallization of the emulsion and the appearance of bidispersion of microcrystals associated with it. In the absence of sta-salt the most considerable concentration of bromide ($pBr = 6.4$) in thermostatically controlled aging of the emulsion was sufficient for the rise of bidispersion, and its rise was accompanied by a sharp change in the photographic properties (a drop in gamma and a rise in light sensitivity). The introduction of $2.61 \cdot 10^{-5}$ mole of sta-salt per liter of emulsion fully stopped recrystallization even for a considerable concentration of bromide. The concentration of bromide that is

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USSR

LYLIKOV, K. S., et al, Uspekhi nauchn. fotogr., 1970, Vol. 14, pp 97-103

- optimal from the aspect of maintaining photographic properties for the indicated concentration of sta-salt is $2 \cdot 10^{-3}$ mole/l, with a final value of 3.8-4.0 for the pBr of the emulsion values apply to the panchromatically sensitized variety of the emulsion investigated. As concerns the latter, also investigated was the stabilizing effect of antioxydants pyrocatechin, α -naphthol, which gave doubly negative results, however. Authors abstract.

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USSR

UDC 621.373.826

AKIMOV, YU. A., BUROV, A. A., ~~GOVORKOV, O. I.~~, KRYUKOV, I. V., RODICHENKO, G. V.,
STEPANOV, B. M.

"KGP-1M Semiconductor Quantum Generator with Electron Excitation"

V sb. Ispol'z. optich. kvant. generatorov v sovrem. tekhn. i med. Ch. 2-3
(Utilization of Lasers in Modern Engineering and Medicine. Parts 2-3--collection of works), Leningrad, 1971, pp 15-20 (from RZh-Radiotekhnika, No 1, 1972, Abstract No 1D376)

Translation: The KGP-1M laser designed for generation of a series of radiation pulses with the interferometric and shadow methods of investigating the optical inhomogeneities is described. The basic characteristics of the laser are as follows: The radiation pulse duration is 10 nanoseconds to 1 microsecond, the repetition rate is 100 hertz to 1 hertz, the radiation power is 100 watts to 1 watt. When operating in the pulse mode, the packet repetition rate is 100 hertz, the number of pulses per packet is 20-30, the pulse repetition rate in the packet is 100 megahertz to 1 gigahertz, the duration of the light pulses is 1-0.1 nanoseconds, and the radiation power per pulse is 100 watts. As the working medium of the semiconductor target, n-type gallium arsenide alloyed with Te is used with an impurity concentration of $1-3 \cdot 10^{18} \text{ cm}^{-3}$. At the temperature of liquid nitrogen, $\lambda = 0.084-0.86$ microns. There are 4 illustrations and a 3-entry bibliography.

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1/2 029 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--EFFECT OF HEAT TREATMENT ON THE STRENGTH OF MECHANICALLY TREATED
CORUNDUM CRYSTALS -U-
AUTHOR-(05)-AKULENOK, YE.M., BAGDASAROV, KH.S., GOVORKOV, V.G.,
KLASSENNEKLYUDOVA, M.V., KHAIMOVMALKOV, V.YA.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(1), 158-9
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--MECHANICAL STRENGTH, THERMAL EFFECT, CORUNDUM, ABRASIVE,
ALUMINUM OXIDE, CHROMIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1988/0614

STEP NO--UR/0363/70/006/001/0158/0159

CIRC ACCESSION NO--AP0105597

UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105597

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DURING RECENT YEARS THE AREA OF PRACTICAL APPLICATION OF CORUNDUM CRYSTALS HAS BEEN BROADENED CONSIDERABLY. THE EFFECT WAS STUDIED OF HEAT TREATMENT ON STRENGTH CHARACTERISTICS OF ARTICLES MADE FROM CORUNDUM CRYSTALS AND TREATED BY ABRASIVE MATERIAL. THE CIRCULAR FLEXURE METHOD WAS USED. THE STRENGTH DETN. WAS DONE FROM THE FRACTURE STRESS VALUE OF THE SAMPLES, AT ROOM TEMP. AND AT A DEFORMATION RATE OF 0.15MM-MIN. THE SAMPLES TESTED WERE GROWN IN FORM OF BOULES BY THE VERNEUIL METHOD. THE NORMAL TO THE SURFACE OF THE PLATES FORMED AN ANGLE OF 16DEGREES WITH THE MEAN VALUE OF 1120 DIRECTION. THE CR IMPURITY CONTENT IN THE AL SUB2 O SUB3 BATCH WAS 0.04 AT. PERCENT. IN ORDER TO REMOVE RESIDUAL STRESSES, THE SAMPLES WERE ANNEALED. THE INCREASE (2.5-3 TIMES) IN THE STRENGTH OF THE SAMPLES ACHIEVED AS A RESULT OF HEAT TREATMENT AT 1200DEGREES FOR 1 HR REMAINS UNCHANGED DURING THE SUBSEQUENT INCREASE IN THE ANNEALING TEMP. TESTS FURTHER SHOWED THAT INCREASING THE ANNEALING TIME 1-48 HR AT 1200-1700DEGREES DID NOT RESULT IN FURTHER INCREASE IN THE STRENGTH OF THE SAMPLES. THE RESULTS OBTAINED ARE INTERPRETED AS ELIMINATION OF THE EFFECT OF THE DEFECTS FORMING AT THE SURFACE OF THE SAMPLES DURING THEIR MECH. TREATMENT. THE RELATIVE HIGH SCATTER IN THE STRENGTH VALUES CAN BE EXPLAINED BOTH BY THE PRESENCE OF VARIOUS BULK DEFECTS IN THE SAMPLES AND BY THE DIFFERENCE IN THE DEGREE OF POLISHING OF THEIR SURFACES.

UNCLASSIFIED

DEFECT STRUCTURE OF CORUNDUM SINGLE CRYSTALS (SAPPHIRE AND RUBY) WERE STUDIED. THE INFLUENCE OF IMPURITY (CR) PRESENCE, CRYSTALLOGRAPHIC ORIENTATION, TEMPERATURE, AND DEFORMATION RATE WAS INVESTIGATED. CHROMIUM MAKES CORUNDUM HARDER AND CAUSES A YIELD POINT PHENOMENON. THE YIELD POINT WAS ALSO INCREASED BY THE TRANSITION FROM 60DEGREES TO 90DEGREES ORIENTATION OF THE SPECIMENS, BY LOWERING THE TEMPERATURE, AND BY AN INCREASE IN THE DEFORMATION RATE. IN 60DEGREES SPECIMENS THE DEFORMATION OCCURS BY MEANS OF GLIDING ON BASAL PLANES IN (1120) AND (1010) DIRECTIONS. IN 90DEGREES SAMPLES BESIDE THIS ONE GLIDING IN (1010), (1011), (2021) AND (2243) IS FOUND. FACILITY: INSTITUTE OF CRYSTALLOGRAPHY OF THE ACADEMY OF SCIENCES OF THE USSR, MOSCOW.

UNCLASSIFIED

1/2 037 UNCLASSIFIED PROCESSING DATE 2008/70
TITLE--PLASTIC DEFORMATION OF CORUNDUM SINGLE CRYSTALS -U-

AUTHOR--(05)-KLASSENNEKLYUDOVA, M.V., GOVORKOV, V.G., URUSOVSKAYA, A.A.,
VJINC
COUNTRY OF INFO--USSR
APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201010015-9"

SOURCE--PHYSICA STATUS SOLIDI, 1970, VOL 39, NR 2, PP 679-688
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--PLASTIC DEFORMATION, SINGLE CRYSTAL, CORUNDUM, RUBY, SAPPHIRE,
CRYSTALLOGRAPHY, RESEARCH FACILITY, CHROMIUM IMPURITY, CRYSTAL IMPURITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/0337

STEP NO--GE/0030/70/039/002/0679/0688

CIRC ACCESSION NO--AP0124094

UNCLASSIFIED

Nitrogen Compounds

UDC 547.821.824.07:542.953

USSR

PROSTAKOV, N. S., Kholdarova, T., Pleshakov, V. G., Govor, S. Vs., and
Shalimov, V. P., University of People's Friendship Imeni Patrice Lumumba,
Moscow

"Condensation of 1,2,5-trimethylpiperidone-4 With Ethyl- and Naphtyl-
acetylenes and Synthesis of Substituted Pyridines"

Riga, Khimiya Geterotsiklicheskikh Soyedinenii, No 3, Mar 73, pp 349-352

Abstract: 1,2,5-Trimethylpiperidone-4 condensed under conditions of Favorskii
reaction with 1-butyne, α - and β -naphtylacetylene yields 4-(1-butynyl)- and
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Raney nickel gave 4-n-butyl-, 4-(2 α -naphtylethyl)- and 4-(2 β -naphtylethyl)-
piperidols-4. These piperidols can be converted to pyridine bases by de-
hydration, catalytic dehydrogenation and N-demethylation. In this fashion
2,5-dimethyl-4-phenylpyridine was obtained from 1,2,5-trimethyl-4-phenyl-
piperidone. Condensation of 2,5-dimethyl-4-phenylpyridine with formalde-
hyde yields 5-methyl-2-(β -hydroxyethyl)-4-phenylpyridine and 2-(5-methyl-4-
phenylpyridyl-2)-propanediol-1,3. The first product was converted to the
urethane N-phenyl- β -(5-methyl-4-phenylpyridyl-2)ethylcarbamate and dehydrated
to 5-methyl-2-vinyl-4-phenylpyridine. 2,5-Dimethyl-4-n-butylpyridine

USSR

PROSTAKOV, N. S., et al., Khimiya Geterotsiklicheskikh Soyedinenii, No 3, Mar 73, pp 349-352

condensed with formaldehyde gave 5-methyl-2-(β -hydroxyethyl)-4-n-butylpyridine which was dehydrated to 5-methyl-2-vinyl-4-n-butylpyridine. Two derivatives of this β -hydroxyethyl compound were prepared: N-phenyl- β -(5-methyl-4-n-butylpyridyl-2)ethylcarbamate and 5-methyl-2-(β -benzoyloxyethyl)-4-n-butylpyridine.

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USSR

JDC 77

LYLIKOV, K. S., YAROSLAVSKAYA, N. N., ~~GOVORKOV, L. P.~~

"Certain Features of the Stabilization of Ammonialess High-Dispersion Emulsions"

Uspekhi nauchn. fotogr. (Advances in Scientific Photography), 1970, Vol. 14, pp 97-103 (from RZh-Fizika, No 12(I), Dec 70, Abstract No 12D1328)

Translation: In the development of especially high dispersion, homogeneous ammonialess emulsions of the EVR-1000 type ($d = 0.03 \mu$), there arose the question of its stabilization. A basic difficulty in the stabilization of such an emulsion is in preventing the recrystallization of the emulsion and the appearance of bidispersion of microcrystals associated with it. In the absence of sta-salt the most considerable concentration of bromide ($pBr = 6.4$) in thermostatically controlled aging of the emulsion was sufficient for the rise of bidispersion, and its rise was accompanied by a sharp change in the photographic properties (a drop in gamma and a rise in light sensitivity). The introduction of $2.61 \cdot 10^{-5}$ mole of sta-salt per liter of emulsion fully stopped recrystallization even for a considerable concentration of bromide. The concentration of bromide that is

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USSR

... fotogr., 1970, Vol. 14, pp 97-103
optimal from the aspect of maintaining photographic properties for the indicated concentration of sta-salt is $2 \cdot 10^{-3}$ mole/l, with a final value of 3.8-4.0 for the pBr of the emulsion values apply to the panchromatically sensitized variety of the emulsion investigated. As concerns the latter, also investigated was the stabilizing effect of antioxydants pyrocatechin, α -naphthol, which gave doubly negative results, however. Authors abstract.

2/2

- 61 -

USSR

UDC 621.373.826

AKIMOV, YU. A., BUROV, A. A., GOVOROV, O. I., KRYUKOV, I. V., RODICHENKO, G. V.,
STEPANOV, B. M.

"KGP-1M Semiconductor Quantum Generator with Electron Excitation"

V sb. Ispol'z. optich. kvant. generatorov v sovrem. tekhn. i med. Ch. 2-3
(Utilization of Lasers in Modern Engineering and Medicine. Parts 2-3--collection of works), Leningrad, 1971, pp 15-20 (from RZh-Radiotekhnika, No 1, 1972, Abstract No 1D376)

Translation: The KGP-1M laser designed for generation of a series of radiation pulses with the interferometric and shadow methods of investigating the optical inhomogeneities is described. The basic characteristics of the laser are as follows: The radiation pulse duration is 10 nanoseconds to 1 microsecond, the repetition rate is 100 hertz to 1 hertz, the radiation power is 100 watts to 1 watt. When operating in the pulse mode, the packet repetition rate is 100 hertz, the number of pulses per packet is 20-30, the pulse repetition rate in the packet is 100 megahertz to 1 gigahertz, the duration of the light pulses is 1-0.1 nanoseconds, and the radiation power per pulse is 100 watts. As the working medium of the semiconductor target, n-type gallium arsenide alloyed with Te is used with an impurity concentration of $1-3 \cdot 10^{18} \text{ cm}^{-3}$. At the temperature of liquid nitrogen, $\lambda = 0.084-0.86$ microns. There are 4 illustrations and a 3-entry bibliography.

1/1

- 88 -

1/2 029 UNCLASSIFIED
TITLE--EFFECT OF HEAT TREATMENT ON THE STRENGTH OF MECHANICALLY TREATED
CORUNDUM CRYSTALS -U-
AUTHOR--(05)--AKULENOK, YE.M., BAGDASAROV, KH.S., GOVORKOV, V.G.,
KLASSENNEKLYUDOVA, M.V., KHAIMOVMAKOV, V.YA. G
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(1), 158-9
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS
TOPIC TAGS--MECHANICAL STRENGTH, THERMAL EFFECT, CORUNDUM, ABRASIVE,
ALUMINUM OXIDE, CHROMIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1988/0614

STEP NO--UR/0363/70/006/001/0158/0159

ACCESSION NO--AP0105597

UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105597

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DURING RECENT YEARS THE AREA OF PRACTICAL APPLICATION OF CORUNDUM CRYSTALS HAS BEEN BROADENED CONSIDERABLY. THE EFFECT WAS STUDIED OF HEAT TREATMENT ON STRENGTH CHARACTERISTICS OF ARTICLES MADE FROM CORUNDUM CRYSTALS AND TREATED BY ABRASIVE MATERIAL. THE CIRCULAR FLEXURE METHOD WAS USED. THE STRENGTH DETN. WAS DONE FROM THE FRACTURE STRESS VALUE OF THE SAMPLES, AT ROOM TEMP. AND AT A DEFORMATION RATE OF 0.15MM-MIN. THE SAMPLES TESTED WERE GROWN IN FORM OF BOULES BY THE VERNEUIL METHOD. THE NORMAL TO THE SURFACE OF THE PLATES FORMED AN ANGLE OF 16DEGREES WITH THE MEAN VALUE OF 1120 DIRECTION. THE CR IMPURITY CONTENT IN THE AL SUB2 O SUB3 BATCH WAS 0.04 AT. PERCENT. IN ORDER TO REMOVE RESIDUAL STRESSES, THE SAMPLES WERE ANNEALED. THE INCREASE (2.5-3 TIMES) IN THE STRENGTH OF THE SAMPLES ACHIEVED AS A RESULT OF HEAT TREATMENT AT 1200DEGREES FOR 1 HR REMAINS UNCHANGED DURING THE SUBSEQUENT INCREASE IN THE ANNEALING TEMP. TESTS FURTHER SHOWED THAT INCREASING THE ANNEALING TIME 1-48 HR AT 1200-1700DEGREES DID NOT RESULT IN FURTHER INCREASE IN THE STRENGTH OF THE SAMPLES. THE RESULTS OBTAINED ARE INTERPRETED AS ELIMINATION OF THE EFFECT OF THE DEFECTS FORMING AT THE SURFACE OF THE SAMPLES DURING THEIR MECH. TREATMENT. THE RELATIVE HIGH SCATTER IN THE STRENGTH VALUES CAN BE EXPLAINED BOTH BY THE PRESENCE OF VARIOUS BULK DEFECTS IN THE SAMPLES AND BY THE DIFFERENCE IN THE DEGREE OF POLISHING OF THEIR SURFACES.

UNCLASSIFIED

"APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R002201010015-9

UNCLASSIFIED

PROCESSING DATE--2000/07/0

TITLE--PLASTIC DEFORMATION OF CORUNDUM SINGLE CRYSTALS -U-

AUTHOR--(05)--KLASSENNEKLYUDOVA, M.V., GOVORKOV, V.G., URUSOVSKAYA, A.A.,
VOINGVA, N.A., KUZLOVSKAYA, E.P.

COUNTRY OF INFO--USSR

SOURCE--PHYSICA STATUS SOLIDI, 1970, VOL 39, NR 2, PP 679-688

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--PLASTIC DEFORMATION, SINGLE CRYSTAL, CORUNDUM, RUBY, SAPPHIRE,
CRYSTALLOGRAPHY, RESEARCH FACILITY, CHROMIUM IMPURITY, CRYSTAL IMPURITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--2000/0337

STEP NO--GE/0030/70/039/002/0679/0688

CIRC ACCESSION NO--AP0124094

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R002201010015-9"

STUDIED. THE TEMPERATURE, AND ORIENTATION, TEMPERATURE, AND CHROMIUM MAKES CORUNDUM HARDER AND CAUSES A YIELD POINT HAS ALSO INCREASED BY THE TRANSITION FROM 60DEGREES TO 90DEGREES ORIENTATION OF THE SPECIMENS, BY LOWERING THE TEMPERATURE, AND BY AN INCREASE IN THE DEFORMATION RATE. IN 60DEGREES SPECIMENS THE DEFORMATION OCCURS BY MEANS OF GLIDING ON BASAL PLANES IN (1120) AND (1010) DIRECTIONS. IN 90DEGREES SAMPLES BESIDE THIS ONE GLIDING IN (1010), (1011), (2021) AND (2243) IS FOUND. FACILITY: INSTITUTE OF CRYSTALLOGRAPHY OF THE ACADEMY OF SCIENCES OF THE USSR, MOSCOW.

CLASSIFIED

"APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R002201010015-9

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PROCESSING DATE--20NOV70

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... AND RUBY) WERE

APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R002201010015-9"

USSR

GOVORKYAN, V. A.

UDC 535.37

"Study of the Mechanism of Intramolecular Energy Transfer in Terbium Complexes With n-Substituted Acetophenones"

Uch. zap. Yerevan. un-t. Yestestv. n. (Scientific Notes of Yerevan University. Natural Sciences), 1970, No 3(115), pp 31-37 (from RZh-Fizika, No 7, Jul 71, Abstract No 7D763)

Translation: The absolute quantum yield of luminescence, the constants of the rate of radiationless energy transfer of ligand terbium, and the rate of degradation of the energy of the triplet level of the ligand (n-isobutoxyacetophenone, n-isopropoxyacetophenone and n-propoxyacetophenone) were determined. Methods of measurement and calculation were described. 8 ref. T. S.

1/1

USSR

Titanium

UDC: 669.295:621.785.062.5

MURAV'YEV, V. I., and GOVOROV, A. A.

"Nitriding Titanium Alloys"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 6, 1973, pp 72-74

Abstract: The authors study boundary conditions during the nitriding of titanium alloys in a rarefied nitrogen medium. The specimens used were made from the VT14, VT6-S, VT3-1, and OT4-1 industrial grades of alloys. The specimens were ground, degreased in acetone and pickled in a reagent with the following composition: 20 vol. by percent HNO_3 , 1-3 vol. by percent HF, 77-79 vol. by percent H_2O . The pickling operation lasted for 2-3 minutes. To achieve saturation, sealed tubes filled with nitrogen were used which were made from the Kh18N9T and 20 grades of steel. The changes in tube pressure were registered on the OBMV1-100 GOST 8625-65 vacuum manometer. Residual pressure was measured with the aid of the VIT-1A ionization thermocouple type vacuum manometer. One end of the tube was hermetically sealed to the measurement equipment. The gas volume of the measurement system was taken into consideration. During saturation, pressure changes in the tube were controlled with respect to holding time, temperature, and the value of the tube volume to saturated specimen surface ratio. The results show that nitriding at pressures from 300 to 10^{-2} mm Hg with the nitrogen shut off and holding at decreased pres-

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USSR

MURAV'YEV, V. I., et al, Metallovedeniye, No 6, 1973, pp 72-74

sure is optimal for obtaining a layer of significant depth with satisfactory mechanical properties of the basic metal.

2/2

- 45 -

Titanium

UDC 620.178.1:621.78+9.047

USSR

TIMONINA, L. G., GOVOROV, A. A., and SAFROSHENKOV, A. F., Siberian Metallurgical Institute, Chair of the Science of Metals and Hot Working of Metals

"Effect of Diffusion Metallization and Heat Treatment on the Wear Resistance of VT-8 Alloy"

Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, No 3, 1973, pp 125-129

Abstract: A study was made of the effect of chemico-thermal treatment on the structure, microhardness, and wear resistance of VT-8 alloy. Specimens of VT-8 alloy were heated in mixes of FeMn (50%), Al_2O_3 (48%), NaF (2%) (Composition 1) and mixes of Cr (25%), Si (25%), Al_2O_3 (48%), NaF (2%) (composition 2) at 900-920° and various soakings with subsequent heat treatment. Diagrams show microhardness dependences layer after hardening and aging VT-8 specimens saturated with ferromanganese, chromium, and silicon at 900° saturation temperature, 930° hardening temperature, and 520° annealing temperature. It was found that the temperature, and 520° annealing temperature. It was found that the wear resistance of titanium alloys can be increased by means of thermodiffusion saturation of compositions 1 and 2 and that subsequent heat treatment

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USSR

TIMONINA, L. G., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, No 3, 1973, pp 125-129

has little effect on the wear resistance. Therefore, for increasing the anti-friction properties of VT-8 alloy only chemico-thermal treatment is recommended. Two figures, four tables, five bibliographic references.

2/2

- 51 -

USSR

UDC 669.131.2-196:620.178.16

SLABODINSKIY, I. N., SOFROSHENKOV, A. F., GOVOROV, A. A., and TIMONINA, L. G.
Siberian Metallurgical Institute

"Investigation of the Hydroabrasive Wear Resistance of Cr-Ni White Cast Irons"
Moscow, Izvestiya Uchebnykh Vysshikh Zavedeniy--Chernaya Metallurgiya, No 6,
Jun 73, pp 101-103

Abstract: Alloys containing 17-18% Cr, 2-3.5% C and 2-6% Ni were melted in an acid induction furnace in order to study the hydroabrasive wear resistance of white cast irons in the cast and heat-treated conditions in relation to carbon and nickel content in the alloys. It was shown that increased nickel content has little effect on wear resistance, and heat treatment exerts little effect on cast iron durability. Industrial tests showed that the durability of cast wheels of pumps operating in the water of a hydraulic pit is three times higher than in series pumps. 2 figures, 2 tables, 1 bibliographic reference.

1/1

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USSR

UDC 621.785.533:669.14.018.252.3

MURAV'YEV, V. I., and GOVOROV, A. A.

"Low-Temperature Cyaniding of High-Speed Steels"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 12, 1970, pp 42-43

Abstract: Cyaniding of tools from high-speed steels was performed on a semi-industrial unit using either the charcoal carburizer (GOST 2407-51) or "BAU" charcoal (GOST 6217-52). After 100 hours of service, the depth of the layer, its hardness, and brittleness (under constant cyaniding specifications) remained unchanged. An increase in the contact area of ammonia with the surface of the coal particles somewhat increased the depth of the layer but only slightly decreased its hardness (from HV 1197 to 1171-1145) and brittleness (from 0.09 to 0.03 mm). The effect of the position of the charcoal layer with respect to the specimens was also studied. The experiment involved specimens of R18 steel placed either directly in the charcoal or above it. The results showed that direct placement of the parts in the charcoal increases the depth of the cyanided layer by about 100%. Another experiment involved reamers and drills from R18M steel placed in the charcoal. The holding time was cut in half. The

1/2

USSR

MURAV'YEV, V. I., and GOVOROV, A. A., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 12, 1970, pp 42-43

tools were found to have the same wear resistance as those treated by passing ammonia through charcoal in a separate compartment. It is concluded that the cyaniding intensity of tools from high-speed steels in the presence of charcoal is about the same as with the use of carburizing gases of different activity together with ammonia. Direct contact of the tool, ammonia, and charcoal accelerates cyanidation 1.5-2 times as compared to a separate arrangement of coal and tools.

2/2

1/2 016 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--HYDRATION HARDENING OF DISPERSED MERWINITE -U-
AUTHOR--(03)-GOVOROV, A.A., OVRAMENKO, N.A., OVCHARENKO, F.O.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(4), 808-8
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CRYSTAL STRUCTURE, CALCIUM COMPOUND, MAGNESIUM COMPOUND,
SILICATE, HYDRATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3008/0995

STEP NO--UR/0363/70/006/004/0803/0808

CIRC ACCESSION NO--AP0138023

UNCLASSIFIED

"APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R002201010015-9

APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R002201010015-9"

USSR

Titanium

UDC: 669.295:621.795.002.5

MUKHAYEV, V. I., and GOVOROV, A. A.

"Nitriding Titanium Alloys"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 6, 1973, pp 72-74

Abstract: The authors study boundary conditions during the nitriding of titanium alloys in a rarefied nitrogen medium. The specimens used were made from the VT14, VT6-S, VT3-1, and OT4-1 industrial grades of alloys. The specimens were ground, degreased in acetone and pickled in a reagent with the following composition: 20 vol. by percent HNO_3 , 1-3 vol. by percent HF, 77-79 vol. by percent H_2O . The pickling operation lasted for 2-3 minutes. To achieve saturation, sealed tubes filled with nitrogen were used which were made from the Kh12NVT and 20 grades of steel. The changes in tube pressure were registered on the OSMVL-100 GOET 6625-45 vacuum manometer. Residual pressure was measured with the aid of the VTF-1A instrument.

Titanium

USSR

UDC 620.178.1:621.78+9.047

TIMONINA, L. G., GOVOROV, A. A., and SAFROSHENKOV, A. F., Siberian Metallurgical Institute, Chair of the Science of Metals and Hot Working of Metals

"Effect of Diffusion Metallization and Heat Treatment on the Wear Resistance of VT-8 Alloy"

Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, No 3, 1973, pp 125-129

Abstract: A study was made of the effect of chemico-thermal treatment on the structure, microhardness, and wear resistance of VT-8 alloy. Specimens of VT-8 alloy were heated in mixes of FeMn (50%), Al_2O_3 (48%), NaF (2%) (Composition 1) and mixes of Cr (25%), Si (25%), Al_2O_3 (48%), NaF (2%) (composition 2) at 900-920° and various soakings with subsequent heat treatment. Diagrams show microhardness dependences layer after hardening and aging VT-8 specimens saturated with ferromanganese, chromium, and silicon at 900° saturation temperature, 930° hardening temperature, and 520° annealing temperature. It was found that the temperature, and 520° annealing temperature. It was found that the wear resistance of titanium alloys can be increased by means of thermodiffusion saturation of compositions 1 and 2 and that subsequent heat treatment

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USSR

TIMONINA, L. G., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, No 3, 1973, pp 125-129

has little effect on the wear resistance. Therefore, for increasing the anti-friction properties of VT-8 alloy only chemico-thermal treatment is recommended. Two figures, four tables, five bibliographic references.

2/2

- 51 -

USSR

UDC 669.131.2-196:620.173.16

SLABODINSKIY, I. N., SOPROSHENKOV, A. F., GOVORON, A. A., and TIMONINA, L. G.
Siberian Metallurgical Institute

"Investigation of the Hydroabrasive Wear Resistance of Cr-Ni White Cast Irons"

Moscow, Izvestiya Uchebnykh Vysshikh Zavedeniy--Chernaya Metallurgiya, No 6,
Jun 73, pp 101-103

Abstract: Alloys containing 17-18% Cr, 2-3.5% C and 2-6% Ni were melted in an acid induction furnace in order to study the hydroabrasive wear resistance of white cast irons in the cast and heat-treated conditions in relation to carbon and nickel content in the alloys. It was shown that increased nickel content has little effect on wear resistance, and heat treatment exerts little effect on cast iron durability. Industrial tests showed that the durability of cast wheels of pumps operating in the water of a hydraulic pit is three times higher than in series pumps. 2 figures, 2 tables, 1 bibliographic reference.

1/1

USSR

UDC 621.785.533:669.14.018.252.3

MURAV'YEV, V. I., and GOVOROV, A. A.

"Low-Temperature Cyaniding of High-Speed Steels"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 12, 1970, pp 42-43

Abstract: Cyaniding of tools from high-speed steels was performed on a semi-industrial unit using either the charcoal carburizer (GOST 2407-51) or "BAU" charcoal (GOST 6217-52). After 100 hours of service, the depth of the layer, its hardness, and brittleness (under constant cyaniding specifications) remained unchanged. An increase in the contact area of ammonia with the surface of the coal particles somewhat increased the depth of the layer but only slightly decreased its hardness (from HV 1197 to 1171-1145) and brittleness (from 0.09 to 0.03 mm). The effect of the position of the charcoal layer with respect to the specimens was also studied. The experiment involved specimens of R18 steel placed either directly in the charcoal or above it. The results showed that direct placement of the parts in the charcoal increases the depth of the cyanided layer by about 100%. Another experiment involved reamers and drills from R18M steel placed in the charcoal. The holding time was cut in half. The

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USSR

MURAV'YEV, V. I., and GOVOROV, A. A., Metallovedeniye i Tsernicheskaya Obrabotka Metallov, No 12, 1970, pp 42-43

tools were found to have the same wear resistance as those treated by passing ammonia through charcoal in a separate compartment. It is concluded that the cyaniding intensity of tools from high-speed steels in the presence of charcoal is about the same as with the use of carburizing gases of different activity together with ammonia. Direct contact of the tool, ammonia, and charcoal accelerates cyanidation 1.5-2 times as compared to a separate arrangement of coal and tools.

2/2

1/2 016 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--HYDRATION HARDENING OF DISPERSED MERWINITE -U-
AUTHOR--(03)-GOVOROV, A.A., OVRAMENKO, N.A., OVCHARENKO, F.D.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(4), 808-8
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CRYSTAL STRUCTURE, CALCIUM COMPOUND, MAGNESIUM COMPOUND,
SILICATE, HYDRATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3008/0995 STEP NO--UR/0363/70/006/004/0803/0808

CIRC ACCESSION NO--AP0138023
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0138023

ABSTRACT/EXTRACT--(U) GP-G- ABSTRACT. CRYST. MERWINITE IN THE PURE FORM DISPLAYED INSIGNIFICANT HYDRAULIC ACTIVITY AT TREATMENT TEMPS. OF 100 AND 150DEGREES AND A SIGNIFICANTLY GREATER ACTIVITY AT 200 AND 250DEGREES, WHEREBY AT THE LATTER 2 TEMPS. IT HYDRATES ALMOST FULLY. THE PRESENCE OF A SMALL AMT. OF GLASS IMPURITIES IN THE MERWINITE SIGNIFICANTLY INCREASES THE ACTIVITY OF THE LATTER AT TEMPS. OF HYDROTHERMAL TREATMENT AT 100 AND 150DEGREES AND HAS A STRONG INFLUENCE ON THE PHASE COMPN. OF NEW FORMATIONS. WITH INCREASED TEMP. THE EFFECT OF THE GLASS IMPURITY WEAKENS. FACILITY: INST. KOLLOID. KHIM. KHIM. VODY, KIEV, USSR.

UNCLASSIFIED

USSR

UDC: 669.295:621.785.532.062.5

BOGOMOLOV, V. A., and GOVOROV, A. A.

"Effect of the Structure of VT3-1 Titanium Alloy on the Nature of Diffusion Due to Nitriding"

Moscow, Metallovedeniye i termicheskaya obrabotka metallov, Sept 71, no 9, pp 60-61

Abstract: Earlier research indicates the adverse effect of extrinsic atoms which are unevenly distributed between phases and cause the formation of a surface diffusion layer on subsequent chemical heat treatment. This report concerns the nitriding of the commercial VT3-1 alloy of $\alpha+\beta$ composition and of specimens with equilibrium and nonequilibrium initial structures. The results show that the initial structure in titanium alloys of $\alpha+\beta$ composition affects both the rate and mechanism of nitrogen diffusion on subsequent nitriding. In metastable solid solutions α'' (α')- $\alpha+\beta$ and α' nitrogen diffusion is effected at a high rate at which the critical nitrogen concentration for nitride formation is not reached. In solid solutions with equilibrium $\alpha+\beta$ structures, nitrogen diffusion occurs at a slower rate and produces a surface nitride zone with a high nitrogen con-

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USSR

BOGOMOLOV, V. A., et al, Metallovedeniye i termicheskaya obrabotka metallov,
Sept 71, no 9, pp 60-61

centration which inhibits diffusion. Thus, the nitriding of a VT3-1 titanium alloy of $\alpha+\beta$ composition with a metastable initial structure produced by quenching from near-critical temperatures results in nitrogen diffusion rates higher than those with stabilized initial structures.

2/2

- 51 -

USSR

UDC: 669.15-155:620.178.162

GOVOROV, A. A., REPINA, L. D., and MUROMTSEVA, V. N.

"Influence of Ball Hardening on the Wear-Resistance of Type-30KhGT Nitrocemented Steel"

Izv. VUZ, Chernaya Metallurgiya, No 6, 1970, pp 117-119

Abstract: Ball working of nitrocemented specimens of 30KhGT steel under a pressure of 75-200 kg increases wear resistance under conditions of dry rolling friction. If there are large carbonitrides in the structure, this treatment decreases wear resistance. Roughness of the surface is significantly improved by this treatment. Five illustrations; four biblio. refs.

USSR

UDC: 778.4:621.735.9:533.6

GQVOROV, B. V., ORLOV, A. A.

"Using a Laser Light Source to Make Stereophotographs of Particle Tracks"

Moscow, Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematografii, Vol 18,
No 3, pp 209-210

Abstract: A stereophotographic method is proposed for studying the tracks of microparticles artificially suspended in a flow of gas or liquid to visualize the velocity distribution. The flow around the model in a transparent tube is illuminated by a laser beam directed parallel to the direction of flow. The flow is photographed by a stereocamera aimed through the side wall of the tube.

1/1

- 121 -

-USSR

UDC: 681.2.085(047.1)

GOVOROV, V. S.

"Device for Text Memory and Readout"

Moscow, Pribory i Tekhnika Eksperimenta, No. 3, 1971, pp 89-92

Abstract: The advantage of this device over existing reading machines of its type is its greater simplicity and smaller size. It consists of a combination of single-sided memory device and symbol generator, operated in conjunction with an electronic computer, and offers the advantages associated with such a combination: autonomy, simplification of coupling with the computer, and a reduction in the time required for transmitting the data from the computer to the cathode-ray tube at which the text is read out. A functional diagram of the device for text memory and for forming the voltages to deflect the CRT beam for scanning is given and its operation explained. A formula is given for the number of texts the operator can simultaneously read from the CRT in terms of the critical frequency of scanned-element fusion, which is about 30-50 Hz, depending on the brightness of the scanned letters and the intensity of the outside light on the CRT screen; the time required to get the scanning beam to the initial point of the text, amounting to about 15 μ s for a CRT with magnetic-field deflection; and several other factors. The

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USSR

GOVOROV, V. S., Pribory i Tekhnika Eksperimenta, No. 3, 1971, pp
89-92

author is connected with the Black Sea Higher Naval Academy, at
Sevastopol'.

2/2

- 56 -

USSR

UDC 621.315.592

YAKULENKO, O. V., GOVOROVA, O. A., SERGEYEV, O. T., Kiev State University imeni T. G. Shevchenko

"Effect of Ultraviolet Illumination on Infrared Absorption in SiC(6H)"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 5, 1972, pp 956-957

Abstract: Analysis of the temperature dependence of the Hall effect in n-type SiC(6H) gives a value of 0.095 electron volts for the nitrogen activation energy E_a [G. A. Lomakina, et al., FTT, No 12, 2918, 1970]. Along the long-wave side of the lattice bands at the temperature of liquid nitrogen a structure is observed which can be caused by photoionization of the impurity atoms (nitrogen). Ultraviolet illumination was used to discover the mechanism of this absorption. Graphs are presented showing the increase in optical density in the presence of illumination. The increase in absorption on irradiation of SiC(6H) crystals by photons with an energy exceeding the width of the forbidden zone can be explained by the increase in concentration of neutral donors as a result of capture of the nonequilibrium electrons by ionized centers. The proposed model does not explain the absence of an additional absorption band connected with the transition to a higher excited state ($\nu=720 \text{ cm}^{-1}$) or the nature of the weak band for $h\nu \approx 0.064$ electron volts.

1/1

USSR

UDC 535.373.1(083.76)

YAKHNIS, G. I., ~~GOVOROVA, R. A., DOVGAN' M. YE., BATURICHEVA,~~
Z. B.

"Some Questions of Scintillator Standardization"

Khar'kov, Monokristally, Stsintillyatory i Organicheskiye Lyumino-
fory -- Sbornik (Monocrystals, Scintillators, and Organic Lumino-
phores -- Collection of Works), No 5, 1970, pp 302-306 (from
Referativnyy Zhurnal, Metrologiya i Izmeritel'naya Tekhnika, No 12,
1970, Abstract No 12.32.1498)

Translation: In recent years, the area of the employment of scin-
tillators has expanded considerably. Demands made upon them have
also increased, particularly with regard to their capacity to
operate under conditions of the action of various climatic and
mechanical factors. Standardization of the products should begin
with the development of basic rules which include a classification
of the products according to the nature of their employment and
according to the level of their operational characteristics; jus-
tified guarantee periods and a technical service life must be
established. The present article sets forth the results of
1/2

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USSR

YAKHNIS, G. I., et al, Monokristally, Stsintillyatory i Organiches-
kiye Lyuminofovy -- Sbornik, No 5, 1970, pp 302-306

research carried out in this direction. 1 figure, 1 table,
2 bibliographic entries.

2/2

Inorganic Compounds

USSR

UDC 621.3.048

BORISENKO, A. I., NIKOLAYEVA, L. V., GOVOROVA, R. M., KHASHKOVSKIY, S. V.,
and RUDYUK, V. YA.

"Flexible Inorganic Electrically Insulating Coatings"

Leningrad, Zhurnal Prikladnoy Khimii, Vol 45, No 10, Oct 72, pp 2258-2261

Abstract: Flexible inorganic electrically insulating coatings are prepared from drosses in which a semicolloidal nitrate solution serves as the dispersion medium. In the process of thermal treatment such solutions decompose yielding a glassy binding and volatile components. Such coatings have many useful properties: excellent flexibility, stability against heat and high dielectric properties at 1000°. Glass-ceramic coatings are fixed durably on nickel, Nichrome, chromel, Alusel, Copel, platinum, tungsten, and tungsten-rhenium wires, the process of depositing and fixation being very simple, capable of continuous operation.

1/1

USSR

UDC 541.138.3:547

ARTEMOVA, V. M., DERKUL'SKAYA, V. S., and GOVORUKHA, V. G., Donetsk Institute of Soviet Trade

"Study of the Activity of Titanium, Zirconium, Niobium, and Tantalum During Electroreduction of Certain Organic Acids"

Moscow, Elektrokhimiya, Vol 6, No 8, Aug 70, pp 1128-1130

Abstract: A study was made of the activity of the transition metals in groups 4 and 5 to reduction of organic acids of various structures. The reduction of maleic, benzoic, oxalic, and phthalic acids in sulphuric acid or alcohol-sulphuric acid solutions was studied by the polarization curve method and also coulometrically. The data indicate that maleic acid causes a potential shift in the positive direction, reaching 200 mv in titanium, niobium, and tantalum. The coulometric measurements showed that electroreduction of maleic acid occurs with good yield on tantalum and with somewhat less yield on niobium and zirconium. Electroreduction of oxalic acid does not occur on any of these cathodes at a concentration on the order of 0.1 mol/l. However, when the acid concentration is increased by five times, some reduction does occur on zirconium. Benzoic and phthalic acids, practically speaking, are not reduced under the

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USSR

ARTEMOVA, V. M., et al, Elektrokimiya, Vol 6, No 8, Aug 70, pp 1128-1130

conditions used on any of the metals. The selectivity of the process probably results not only from the greater or lesser change in hydrogen potential, but also from the differing nature of the hydrating agent on the metals, which have different capacities for hydrogen adsorption.

2/2

1/2 025 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--TRANSMISSION COEFFICIENT OF DISTRIBUTED GAIN AMPLIFIER USING
TRANSISTORS -U-
AUTHOR--GOVORUKHIN, V.I. 6

COUNTRY OF INFO--USSR

SOURCE--IZV. VUZ RADIOELEKTRONIKA (USSR), VOL. 13, NO. 1, P. 37-45, JAN.
1970
DATE PUBLISHED----JAN70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--TRANSISTORIZED AMPLIFIER, WIDEBAND TRANSMISSION, ELECTRONIC
CIRCUIT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3008/0267

STEP NO--UR/0452/70/013/001/0037/0045

CIRC ACCESSION NO--AP0137372

UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137372

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. OPTIMUM OPERATING PARAMETERS ARE DETERMINED FOR A TRANSFORMER COUPLED, DISTRIBUTED GAIN TRANSISTOR AMPLIFIER, UTILIZING A UNIFORM COLLECTOR LINE. THIS TYPE OF CIRCUIT IS SUITABLE FOR USE FOR WIDEBAND, FIXED FREQUENCY STAGES OF A SHORT WAVE TRANSMITTER. THE THEORY IS VERIFIED EXPERIMENTALLY ON A FOUR STAGE, 16 W DISTRIBUTED AMPLIFIER, WORKING IN CLASS A, OVER THE FREQUENCY BAND 25-28 MHZ. RESULTS ARE DISCUSSED IN DETAIL.

UNCLASSIFIED

USSR

UDC: 517.948.32

GOVORUNHINA, A. A. and PARADOKSOVA, I. A.

"An Infinite System of Linear Algebraic Equations"

V sb. Materialy Vses. konferentsii po krayev zadacham (Materials of the All-Union Conference on Boundary Value Problems--collection of works) Kazan', Kazan University, 1970, pp 83-86 (from RZh-Matematika, no. 3, March 71, Abstract No. 3B267)

Translation: The following infinite system of algebraic equations is considered:

$$x - Tx = c : \quad (1)$$

$$\text{where } Tx = \{\xi_n\} = \begin{cases} \sum_{k=-\infty}^{\infty} a_{n-k} x_k, & n \geq 0, \\ \sum_{k=-\infty}^{\infty} b_{n+m}(k) x_k, & n < 0; \end{cases}$$

1/2

USSR

GOVORUKHINA, A. A., et al, sb. Materialy Vses. konferentsii po krayev zadacham Kazan', Kazan University, 1970, pp 83-85

sequences $\{a_n\}, \{b_n\} \in \underline{1}$; $A(t) = \sum_{k=-\infty}^{\infty} a_k t^k, |t| = 1$; $c = \{c_n\} \in \underline{1}_2$;

$x = \{x_n\} \in \underline{1}_2$; $m(k)$ is a whole-numbered function, which takes each of its values at no more than q points; $m(k) < 0$ for $k < 0$.

Theorem 1. If $1 - A(t) \neq 0$, the Noether theorem is justified, and the index of the system is determined by the formula

$$\chi = -\text{Ind} [1 - A(t)]_{|t|=1} = - \int_{|t|=1} d\tau \arg [1 - A(\tau)].$$

A method for regularizing system (1) is indicated for the case of $m(k) = mk$. It is asserted that the spectrum of operator T consists of 1) the spectrum of operator A i.e., of the points in the closed curve $\lambda = A(t), |t| = 1$, and those points that do not lie on it, where $\text{Ind}[\lambda - A(t)]_{|t|=1} \neq 0$; 2) eigen-values of some completely continuous operator which do not belong to the spectrum of operator A . V. Rogozhin

2/2

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1/2 011 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--DETERMINATION OF THE THREE DIMENSIONAL STRUCTURE OF A PEPSIN
MOLECULE AT 5.5 A. RESOLUTION -U-
AUTHOR--(05)-ANDREYEVA, N.S., BORISOV, V.V., GOVORUN, N.N., MELIKADAMYAN,
V.R., RAYZ, V.SH.
COUNTRY OF INFO--USSR

SOURCE--DOKL. AKADE. NAUK SSSR 1970, 192(1), 216-19

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PEPSIN, MOLECULE, CRYSTAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605006/F02 STEP NO--UR/0020/70/192/001/0216/0219

CITE ACCESSION NO--A10139815

UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AT0139815

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. EXAMN. OF A MONOCLINIC FORM OF PEPSIN CRYSTALS PREPD. AT PH 2 (MAX. ACTIVITY OF THE ENZYME IS AT THIS PH) SHOWED THAT THE UNIT CELL OF THE ENZYME HAD PARAMETERS OF: A EQUALS 54.7ANGSTROM, B EQUALS 36.3ANGSTROM, C EQUALS 73.5ANGSTROM, AND BETA EQUALS 104DEGREES; THE UNIT CELL CONTAINS 2 MOLS. OF THE PROTEIN. ISOMORPHOUS DERIVS. WERE MADE BY ION DIFFUSION OF HGI SUB3, HGBR SUB3, PT(C SUB2 U SUB4) SUB2 PRIME2 NEGATIVE, PTCL SUB4 PRIME2 NEGATIVE, AND PT(NO SUB2) SUB4 PRIME2 NEGATIVE. THE INTRODUCTION OF THESE HEAVY ATOMS WAS FOLLOWED BY DIFFRACTION ANAL. THE ENZYME CONTAINS DISTINCT ALTERNATING, FLAT LAYERS WITHOUT INTERNAL VOIDS BUT WITH A VERY COMPLEX RELIEF SURFACE. FACILITY: INST. MOL. BIOL., MOSCOW, USSR.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--THE DEVELOPMENT OF ADRENERGIC APPARATUS OF THE HEART IN MATURELY
AND IMMATURELY BORN ANIMALS -U-
AUTHOR-(02)-GOVVRIN, V.A., REYDLER, R.M.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EVOLYUTSIONNOY BIOKHIMII I FIZIOLOGII, 1970, VOL 6, NR 2,
PP 198-203
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HEART MUSCLE, CATECHOLAMINE, GUINEA PIG, RAT, RABBIT,
EMBRYOLOGY, SYMPATHETIC NERVOUS SYSTEM, NORADRENALIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0368

STEP NO--UR/0385/70/006/002/0193/0203

CIRC ACCESSION NO--AP0132597

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0132597

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDIES HAVE BEEN MADE ON THE DISTRIBUTION OF ADRENERGIC FIBERS AND THE CONTENT OF CATECHOLAMINES IN THE CARDIAC MUSCLE OF MATURELY (GUINEA PIG) AND IMMATURELY BORN (RAT, RABBIT) ANIMALS AT VARIOUS STAGES OF EMBRYONIC AND POSTNATAL DEVELOPMENT. CATECHOLAMINES WERE DETERMINED BY THE METHOD OF EULER AND FLODING (16). ADRENERGIC FIBERS WERE REVEALED AFTER FALK AND HILLARP (18). HISTOCHEMICAL AND BIOCHEMICAL DATA INDICATE THAT ELEMENTS OF THE SYMPATHETIC NERVOUS SYSTEM APPEAR IN THE HEART OF THE ANIMALS STUDIED DURING THE SECOND HALF OF GESTATION. ORIGINALLY THEY ARE OBSERVED IN THE ATRIA AND ONLY LATER ON, IN THE VENTRICLES. NORADRENALIN WAS FOUND IN RABBIT'S CARDIAC MUSCLE ON THE 14TH DAY OF EMBRYOGENESIS, WHEN ADRENERGIC FIBERS WERE NOT YET REVEALED. TO THE END OF GESTATION, THE CONTENT OF NORADRENALIN IN THE HEART OF THE GUINEA PIG AMOUNTS TO 50PERCENT AND THAT OF THE RABBIT, TO 20PERCENT OF THE LEVEL OBSERVED IN ADULT ANIMALS. FORMATION OF THE ADRENERGIC APPARATUS IN THE GUINEA PIG IS ACCOMPLISHED TO THE END OF THE 1ST WEEK OF POSTNATAL LIFE, WHEREAS IN THE RABBIT, ONLY TO THE 5-6TH WEEKS. FACILITY: INSTITUTE OF EVOLUTIONARY PHYSIOLOGY AND BIOCHEMISTRY, USSR ACADEMY OF SCIENCES, LENINGRAD.

UNCLASSIFIED

USSR

UDC 621.3.035

GOVAN, YE. B., MINDYUK, A. K., BABEY, YU. I., Physical-Mechanical Institute of the Ukrainian SSR Academy of Sciences, L'vov

"Electrochemical Cell for Studying the Electrode Processes in Acids at Elevated Temperatures"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 8, No 2, 1972, pp 114-116

Abstract: An electrochemical cell is described which is used to study the electrode processes taking place from metal surfaces in acids at elevated temperatures (20-90° C). The schematics of a two-channel heat regulator and a device for recording the polarization curves under galvanostatic and potentiostatic conditions are presented. A Luggin capillary with an inside diameter of 1-1.5 mm is placed at a distance of 1-1.5 mm from the investigated electrode, and the electrolytic bridge of the auxiliary electrode (inside diameter 4.5 mm) is at a distance of 15 mm. The distances of the electrolytic switches from the electrodes are constant since the switches are soldered to the cell. The specimen is placed in a teflon holder screwed into a plug. Thus, the specimen can be placed in a given position for each measurement. For thermostating, a two-channel heat regulator has been developed which permits the temperature of the investigated solution, the comparison electrode and the auxiliary electrode to be regulated with an accuracy of $\pm 0.3^\circ \text{C}$.

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USSR

UDC 621.375.82

OBUKHOV, V. I., BABITSKAYA, E. M., GOYDENKO, P. P., and BUYKO, L. D.

"Lasers in Semiconductor Monitoring Systems"

Kvantovyye generatory v sistemakh kontrolya poluprovodnikov (cf. English above), Minsk, "Nauka i Tekhn." (Science and Technology), 1972, 120 pp, ill., 55 kopecks (from RZh-Fizika, No 8, Aug 72, Abstract No 8D1157K)

Translation: The book describes methods and principles for the formation of automatic systems through the use of lasers to monitor such semiconductor parameters as thickness of epitaxial film and resistivity, as well as parameters characterizing surface state. The authors take up the peculiarities of the interaction of electromagnetic laser radiation with the semiconductor (reflection, absorption, refraction) and the methods and principles on which the monitoring is based (interference, holography etc.). Bibliography with 87 titles.

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- 30 -

GOYKHAMAN, L.V.

machine studies

IDENTIFICATION OF MODEL OF HUMAN OPERATOR WITH RANDOM VIBRATION ACTIONS

Author: Goykhaman, L. V. (Moscow)

A dynamic human operator system influenced by wide band random (white noise) perturbation in the frequency range up to 200 Hz is studied.

The method is based on determining the parameters of the dynamic human operator system and construction of a model for each position. The body of the operator is looked upon as a linear dynamic model consisting of series-connected absolutely rigid bodies with masses m_1 connected by elastic and damping elements k_1 and c_1 .



Figure 1.

A method is presented for selecting the length of the recording of the operator's actions to ensure its stability. Distribution rules of the output process are found for each position, and the correlation functions and spectral density functions are calculated for the input and output processes.

SO: Goykhaman, L. V.
Moscow, U.S.S.R.
May 1972

USSR

UDC: 621.372.5/.6

GOYKHBARG, Ye. I.

"A Method of Determining Resistance and Conductance Matrices for Linear Multiterminal Networks"

Tr. Mosk. elektrotekhn. in-ta svyazi (Works of the Moscow Electrical Engineering Institute of Communications), 1970, vyp., pp 155-159 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11A109)

Translation: The author presents a method of determining the elements of WZ and WY matrices of multiterminal networks. The procedure is based on analysis of the linear circuit by the method of loop currents or node voltages. This method gives determinants for matrices of lower order than those of the method based on finding the inverse matrices of the circuits. One illustration, bibliography of two titles. L. S.

1/1

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1/2 014 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--DEMOUNTABLE, INTERNALLY FILLED COUNTER FOR MEASURING LOW LEVELS OF
GAS ACTIVITY -U-
AUTHOR--(04)-BESKORSKIY, A.I., ELAKOV, L.S., GUYKHBERG, YE.YA., BORISOV,
I.YA.
COUNTRY OF INFO--USSR
SOURCE--PRIB. TEKH. EKSP. 1970, 1, 64-5
DATE PUBLISHED-----70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--BETA PARTICLE DETECTOR, COUNTING CIRCUIT, TRACE ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/1225

STEP NO--UR/0120/70/001/000/0064/0065

CIRC ACCESSION NO--AP0115242

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--16OCT70
CIRC ACCESSION NO--AP0115242
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE COUNTER IS CONSTRUCTED
ACCORDING TO A SCHEME GIVEN BY G. OSTLUND (1962). THE ELEC. CIRCUIT AND
PARAMETERS ARE GIVEN. THE DEMOUNTABLE COUNTER OF BETA RADIATION HAS A
WORKING VOL. OF 11. MIN. MEASURABLE ACTIVITY EQUALS 5 TIMES 10 PRIME
NEGATIVE12 CI-L.

END

USSR

UDC 669.15.24.782:669.112.227.34

SHEYNBERG, M. M., GOYKHENBERG, Yu. N., MIRZAYEV, D. A., and MOROZOV, O. P.,
Chelyabinsk Polytechnical Institute

"Martensite Transformation in the Plastic Deformation of Fe-Ni-Si Alloys"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 30, No 6, Dec 70, pp 1200-1205

Abstract: Fe-Ni-Si alloys were melted in a 50-kg induction furnace, poured into 12.5-kg ingots, and forged into billets measuring 15 x 15 mm. The bars were homogenized for 10 hours at 100° C and then rolled into plates 1.5-2 mm thick from which samples measuring 60 x 5 x 1 mm were prepared. Chemical composition of alloy N28S was (in wt %): 28.1 Ni, 1.5 Si, 0.04 Mn, 0.07 Cr, 0.022 S, 0.012 P, balance Fe; composition of alloy N29S2 was: 29.3 Ni, 2.02 Si, 0.07 C, 0.13 Mn, 0.09 Cr, 0.02 S, 0.016 P, balance Fe. The martensite transformation temperature (M_s) was +10 for N28S and -60 for N29S2. From a study of the martensite formation by plastic deformation it was established that martensite needles of the finest martensite plates are formed during cooling and do so in and along the grain boundaries. The needles, formed by plastic deformation, are most often situated parallel and intersect
1/2

USSR

SHTEYNBERG, M. M., et al, Fizika Metallov i Metallovedeniye, Vol 30, No 6, Dec 70, pp 1200-1205

slip lines at small angles. The angle of disorientation in an austenite grain achieves a significantly large magnitude when plastic deformation is accompanied by the formation of martensite. This disorientation is much greater than when deformation is done above the M_d temperature.

2/2

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USSR

UDC 621.317.32.015.33

GOYKEMAN, A. YA., GRYAZNOV, M. I., and KALININ, V. M., Scientific Research Institute of Nuclear Physics

"Measurement of Ultrashort Electric Pulse Parameters by the Integral Method Using the Franz-Keldysh Effect"

Moscow, Vestnik Moskovskogo Universiteta, Seriya III -- Fizika, Astronomiya, Vol 12, No 2, Mar-Apr 71, pp 232-234

Abstract: In an earlier article the authors suggested the idea of recording and determining parameters of ultrashort electric pulses by their "pile-up" on a light carrier by means of an electrooptic modulator based on the Franz-Keldysh effect. It was indicated that one of the ways of obtaining information on ultrashort pulse parameters is the integral method, developed in radio engineering for the measurement of pulse parameters. The present article considers the principle of the measurement of ultrashort pulse parameters. The suggested method makes it possible to determine the amplitude of single square ultrashort pulses and then, using the linear dependence of the output signal

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USSR

GOYKHMAN, A. YA., et al., Vestnik Moskovskogo Universiteta, Seriya III --
Fizika, Astronomiya, Vol 12, No 2, Mar-Apr 71, pp 232-234

of the photoreceiver on the duration of the pulse being investigated, to determine the duration of the latter. The use of a greater number of modulators makes it possible to obtain more detailed information on the shape of investigated ultrashort pulses of arbitrary shape.

2/2

USSR

UDC: 621.382.002

CHAGULOV, V. S., GOYKHMAN, I. E., BLAGIDZE, Yu. M., NAKASHIDZE, G. A., ELIZBARASHVILI, O. A., Institute of Cybernetics, Academy of Sciences of the Georgian SSR

"An Optron"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 7, Mar 72, Author's Certificate No 329602, Division H, filed 26 May 70, published 9 Feb 72, p 210

Translation: This Author's Certificate introduces an optron which contains a photoreceiver, an emitter and a shell. As a distinguishing feature of the patent, sealing is improved and optical coupling is provided between the receiver and the emitter by making the shell from transparent copolymers with a low index of refraction, and by filling the space between the photoreceiver and emitter with a polymerized copolymer with a high index of refraction.

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GLORIA

GOYKHMAN, R.V.

THE SPECIFICS OF THE INTERACTION OF DYNAMIC SYSTEMS WITH DISTRIBUTED AND LUMPED PARAMETERS

L. V. Goykhan and V. S. Baigamko (Moscow)

The interaction of a system with lumped parameters (railroad train) and a system with randomly distributed parameters (railroad track) is studied.

It is demonstrated that the system with randomly distributed parameters, as a result of nonlinearity of elastic and damping characteristics, is a set of oscillators with unstable frequencies.

The possibility of formation of traveling waves in a discretely anisotropic medium is studied.

The presence of wave processes in the track is detected and a model of formation of traveling and standing waves is suggested. The rails and ties must be looked upon in this case as a basic wave guide.

The possibility is studied of converting the system with distributed parameters to a system of lumped parameters. The lumped parameters selected are the mean or maximum parameters of the track (depending on the distribution law).

Then, a single track-train system is studied. The natural coupled frequencies of this system will be random.

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A method is suggested allowing the instantaneous values of parameters in the system without oscillation to be determined. The number of independent parameters determined in each of the cross sections of the track is equal to the number of degrees of freedom. The essence of the method consists in feeding a perturbation of the "white noise" type to one of the elements of the system in a predetermined frequency band, with a simultaneous Fourier transform of the signal at the output of any element. The spectrum produced is a signal of the frequency characteristic of the system and consequently will have maxima at the natural oscillating frequencies. Expanding the frequency determinant of the system, we produce n algebraic equations of order $2n$ for the frequency with n unknown parameters in each cross section. The number of cross sections is determined considering the least oscillating frequency of the parameters.

33: HIGH TECHNICAL INFORMATION

BASE 77 F-694

May 1972

79

mechanical
design

Corrosion

USSR

UDC 620.193.57

SHATINSKIY, V. G., and GOYKHMEN, M. S., Institute of Physico Mechanics of the Academy of Sciences, Ukrainian SSR, L'vov

"Mechanism of Corrosion of 1Kh18N9T Steel in Lithium During Separation of Secondary Phases"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 6, No 6, 1970, pp 72-75

Abstract: It is demonstrated that the corrosion damage to 1Kh18N9T steel in lithium occurs primarily as a result of dissolution of nickel. The processes of carbide formation occurring in this steel at 500-800°C intensify the corrosion process. From the results of the experiments performed, it is concluded that no type of preliminary heat treatment can improve viability in a melt of lithium at 500-800°C. Therefore, increased corrosion resistance of 1Kh18N9T steel in lithium can be achieved only by the application of protective surface coatings.

1/1

AA0046286-

Goykhman, S. Ya.

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

1/70

241737 MECHANISM OF LEVEL GAUGE INDICATOR where the parameter to be measured is the loss of weight of the plunger (1) immersed in liquid, proportional to the depth of liquid. Increase of the force which ejects the cylinder causes a reduction of the angle of the torsion tube (2) which with rod (3) is balancing the weight of the plunger. Shaft (4) passing the seal (5) terminates with screw (6) with sliding nut (7) and ring (8). Arms (9) and (10) magnify the movement finally transferred by geared sector mechanism (11-16-17) to dial indicator (18-19-20), which is graduated in % of the level. Arm (9) is pressed by spring (12) to the projection on shaft (4) and by spring (14) to arm (10) touched by slider (15). End of shaft (4) is pressing on suitably machined axis (21) of the plunger.

Ym

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AA0046286

The instrument is adjusted with no liquid in the tank. The slider (15), the insert (13) which controls the level of projection on the shaft (4), and link (16) are set in such a position that the indicator shows zero while the torsion tube of the plunger is not stressed.

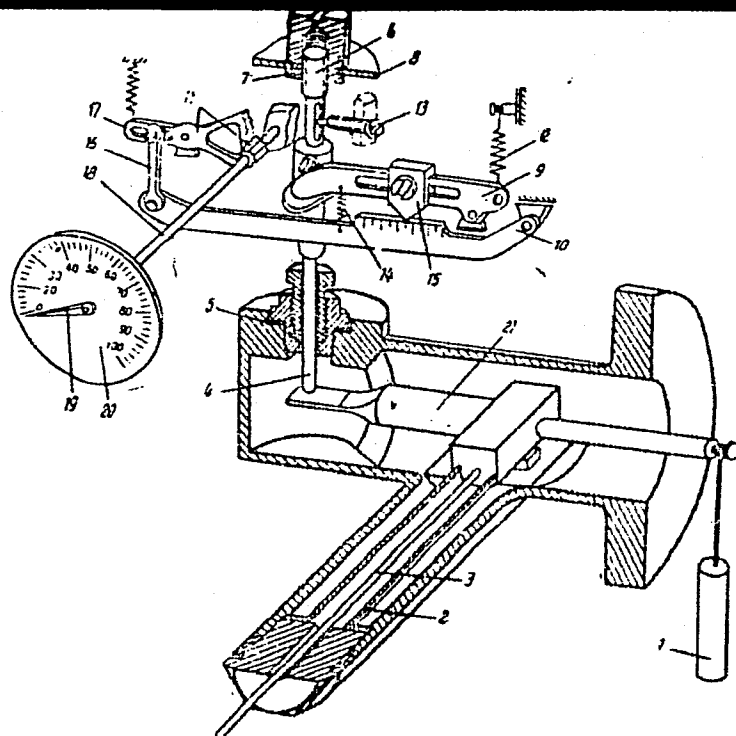
17.3.67 as 1140020/26-10.S.YA.GOIKHMAN et al.(2.9.69)
Bul 14/18.4.69. Class 42e. Int.Cl.G'01 f.

AUTHORS: Goykhman, S. Ya.; Sokolin, Sh. L.; Vikhman,
M. Ye.; Il'inskiy, N. S.; Tuchnin, Ye. A.;
Kamneetskiy, B. L.

2/2

19781437

AA0046286



19781438

USSR

UDC 621.373.533.1-5.6

6
GOYKHMAN, V. M., KOL'DYASH, V. M., DASHKEVICH, I. P., EYLENKERIG, G. I.

"Use of a High-Frequency Plasmatron to Determine the Emittance of Compounds, and Also for Spectral Analysis of Solutions"

V sb. Primeneniye plazmatrona v spektroskopii (Use of the Plasmatron in Spectroscopy--collection of works), Frunze, "Ilim", 1970, pp 82-87 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10D228)

Translation: The emittance of oxygen is measured in the visible region of the spectrum at temperatures of 6,000-9,000°K. It is shown that the spectral distribution of oxygen emission is due chiefly to recombination processes. Preliminary studies are conducted into the use of a high-frequency plasmatron for spectral determination of a number of elements. Three illustrations, bibliography of 31 titles. Résumé.

1/1

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USSR

UDC: 621.317.77

KHOZYAINOV, S. A., ZHUKOVSKIY, V. T., GOYZHEVSKIY, V. A.

"Analysis and Experimental Determination of Amplitude Errors in an SHF Phase Meter"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 2 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 2), Novosibirsk, 1970, pp 118-121 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A329)

Translation: The authors analyze errors in a two-channel phase meter with transfer of phase displacements in the input SHF signal to an intermediate frequency, where amplifiers with AGC which do not introduce phase distortions are used to obtain high precision in the low-frequency indicator of the phase meter. The amplitude-phase error of the phase meter, i. e. the change in its readings when the phases of the input signals are constant while the amplitudes are variable is due to a number of causes in the general case: input signal spectrum, heterodyne voltage, etc. The amplitude-phase distortions in SHF mixers and amplifiers with AGC are analyzed. It is shown that in order to reduce the error of the mixer, the intermediate frequency should be taken at about 1-100 kHz, and the input impedance should be matched to the frequency band maximum. A specific analysis is given for

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USSR

KHOZYAINOV, S. A. et al., Dokl. Vses. nauchno-tekhn. konferentsii po radio-tekhn. izmereniyam. T. 2, Novosibirsk, 1970, pp 118-121

errors of an amplifier with AGC. In amplifiers with AGC having a gain of 60-70 DB, the amplitude-phase error was no greater than 0.05° in a frequency band of 1-100 kHz. Bibliography of one title. E. L.

2/2

USSR

UDC: 621.317.77

KHOZYAINOV, S. A., TRILIS, V. G., GOYZHEVSKIY, V. A.

"An Automatic Trigger Phase Meter"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 2 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 2), Novosibirsk, 1970, pp 116-117 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A326)

Translation: It is noted that a common disadvantage of modern trigger phase meters is the instability of readings in the case of small trigger intervals for the measurement flip-flop, i. e. usually in the vicinity of 0° , 180° or 360° . The zone of instability covers several degrees, and expands in the case of noises. In the proposed phase meter, this disadvantage is eliminated by adding a special logic circuit; the action of this circuit is briefly described. The use of automatic readout (without the services of an operator) over the entire range of angles from 0 to 360° made it possible to use phase multiplication by a factor of 36. The use of class 1.0 dial meters ensures a resolution of at least 0.05° . E. L.

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UDC: 512.25/.26+519.3:330.115

GOYZMAN, E. I.

"Setting up an Optimum Job Execution Schedule for the Case Where Jobs May be Interrupted and Workers May be Transferred"

Tr. 3-y Zimn. shkoly po mat. programmir. i smezhn. voopr., 1970, vyp. 2
(Works of the Third Winter School on Mathematical Programming and Related Problems, 1970, No 2), Moscow, 1970, pp 258-270 (from RZh-Kiber-
netika, No 9, Sep 71, Abstract No 9V498)

[No abstract]

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VASIL'YEV, V. I., and GOYZMAN, M. S.

"Expanded All-Union Seminar on the Analytical Control of the Industrial Products of Medicinal Preparations, Antibiotics and Other Pharmaceutical Agents"

Moscow, Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva imeni D. I. Mendeleev, Vol 15, No 3, 1970, pp 347-349

Abstract: The seminar was held in June 1969 in Pyatigorsk; it consisted of two sections: analysis of drugs and analysis of vitamins, antibiotics, and natural products. F. M. SHEMYAKIN gave an exhaustive review of the physico-chemical methods already used in the pharmaceutical industry. V. G. BELIKOV showed that the use of the differential method increases the sensitivity of photometric drug analysis severalfold. In his review of basic analytical methods, YU. YU. LUR'YE pointed out the need for extensive analysis of sewage waters due to the growth of the chemical-pharmaceutical industry. N. A. KAZARINOV summarized results of studies carried out on the development of analytical methods for carbonyl compounds based on formation of oximes followed by potentiometric titration. M. K. POLIYEVKTOV discussed polarographic studies on

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VASIL'YEV, V. I., and GOYZMAN, M. S., Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva imeni D. I. Mendeleyev, Vol 51, No 3, 1970, pp 347-349

the formation of tropinone. M. S. GOYZMAN reported on a novel thermocatalytic method for the indication of titration end point of weak bases. Several papers covered application of thin layer chromatography in analytical drug control, notably by A. Z. KNIZHNIK, L. I. LISHCHETA, R. I. SHVIDKO, and V. D. DOLGOPOLOVYY, V. I. LIKHACHEVA, S. S. KOMSTAKHOVA, et al. A wide coverage was given to the optical methods. M. M. KAGANSKIY and K. P. TETENCHUK discussed the differential spectrophotometric method used in determination of monomethylurea and urea. Also, I. YA. KUL', N. V. SOLOVA, and V. G. BELIKOV; N. G. TIMPEYEVA, and SHEMYAKIN, F. M., used the spectrophotometric method for determination of a series of compounds. V. I. MALAKOVA used the extraction photometric method for determination of levomepromazine. Analysis of a mixture of compounds could be carried out concurrently by spectrophotometric analysis in nonaqueous media, as reported by V. I. KUZNETSOV. Analysis of quinocide by means of photoelectrocalorimetry was reported by A. V. LITVINENKO and V. N. BERNSTEYN. A mixture of bromoaleic anhydride, bromosuccinic, and maleic anhydrides could be analyzed without preliminary separation by a polarographic

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method according to I. G. MARKOVA, M. K. POLIYEVKTOV, and A. A. BAGREYEVA. Various titrational methods were discussed by L. SH. ALDAROVA, N. T. SMOLOVA, G. V. TUROVTSEVA, I. D. SAVEL'YAVA, A. A. GEYTZ, I. B. DLIKMAN, YE. YA. BORISOVA, S. V. BOGATKOV and YE. M. CHERKASOVA. Only one paper covered preparative gas-liquid chromatography in which YE. M. KAZINIK discussed separation of impurities in γ -pyrrolidone and N-vinylpyrrolidone. Based on the reaction of silver ions with divalent iron, L. V. MARKOVA and T. S. MAKSIMENKO developed a method for determination of microquantities of arsenic and cysteine by a kinetic method.

At the section devoted to analysis of vitamins, antibiotics and natural products, considerable attention was given to chromatographic methods. M. TS. YANATOVSKIY reported on gas-liquid chromatography used for control in production of Vitamine E. V. I. TRUBNIKOV, YE. S. ZHDANOVICH, and N. A. PREOBRAZHENSKIY (DECEASED), developed a gas chromatographic method for analysis of γ -picoline.

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V. G. MAYRANOVSKIY developed a polarographic method for analysis of a ternary mixture of Vitamin A acetate, anhydrovitamin A, and retrovitamin A. Analysis of formulated drugs was carried out by means of gas chromatography -- N. S. YEVTUSHENKO, F. M. SHET'YAKIN, and D. Z. YASKINA -- and by spectrophotometry -- V. N. BERNSHTEYN. Analysis of antibiotics was discussed by: N. V. KONSTANTINOVA -- thin layer chromatographic analysis of antitumor agents; V. I. VASIL'YEV, V. N. KOROBKIN and V. B. KORCHIAGIN -- titration in non-aqueous media; G. I. KLEYNER, V. S. ABRAMSON, L. M. YEILIZAROV-SKAYA and B. B. DZENDZE-PLETMAN -- chromatographic monitoring of the synthesis of 6-aminopenicillanic acid. YE. M. SAVITSKA and P. S. NYS discussed an interesting method for the calculation of ionization constants of antibiotics. Quantitative composition of more important glycosides in digitalis purpurea was reported by N. P. DZYUBA, N. YE. VOROB'YEV and A. I. SOKOLOVA, N. A. KAZARINOV and YE. I. PUCHKOVA carried out quantitative determination of cardiac glycosides of lily of the valley. Thin layer chromatography was used for separation and quantitative determination of hydroxymethylanthraquinones by V. P. GEORGIYEVSKIY and A. L. LITVINENKO.

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The paper chromatographic method was covered by V. A. DANIL'YANTS, S. KH. MUSHINSKAYA and YU. V. SHOSTENKO -- in production of alkaloids from poppyheads and by N. YA., TSARENKO and M. S. SHRAYBER -- in quantitative determination of various alkaloids.

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UDC 547.566.66.095.25

ISAGULYANTS, V. I., GOZALOVA, N. S., and CHURSINA, N. A.

"Condensation of Phenol with Cinnamyl Alcohol in Presence of Cation Exchange Resin KU-2"

Leningrad, Zhurnal Organicheskoy Khimii, Vol 7, No 9, Sep 71, pp 1960-1962

Abstract: A mixture of 141 g phenol, 100.5 g cinnamyl alcohol, and 24.15 g KU-2 was stirred for 5 hrs at 60°. The solid was separated and 90 g of phenol was distilled. The residue was treated with 10% aqueous base and distilled. The first fraction obtained boiled at 200-215°/10 mm, the second -- at 185-200°/10 mm, and the third had a b.p. 220-255°/4 mm. After recrystallization from petroleum ether p-cinnamylphenol, m.p. 63° was obtained from the first fraction. 2-Phenylchromane, m.p. 43° was obtained from the second fraction, and 2,6-dicinnamylphenol, m.p. 126° was obtained from the third. After separation on an alumina column of a mixture of o- and p-isomers, the o-cinnamylphenol, m.p. 67° was obtained.

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1/2 023 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--AUTOMATIC CONTROL SYSTEM FOR THE PROCESS OF ROASTING MATERIALS IN A
ROTARY KILN -U-
AUTHOR-(03)-KSENDOZOVSKIY, V.R., GOZENBUK, L.G., SHALMAN, L.M.
COUNTRY OF INFO--USSR
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CIRC ACCESSION NO--AP0134430

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A ROTARY KILN CAN BE LOOKED UPON AS A SEQUENCE OF TWO OBJECTS FOR AUTOMATIC CONTROL. THE FIRST SECTION HEATS THE MATERIAL TO THE SINTERING TEMPERATURE BY HEAT EXCHANGE BETWEEN THE FLOWS OF THE HEAT TRANSFER MEDIUM AND THE MATERIAL. THE PHYSICAL AND CHEMICAL PROCESSES OF SINTERING OCCUR IN THE SECOND SECTION. THEREFORE, THE AUTOMATIC CONTROL SYSTEM FOR A ROTARY KILN MUST CONSIST OF TWO SYSTEMS. THE MEASURING DEVICES USED IN SUCH A DUAL SYSTEM TO MEASURE TEMPERATURE IN THE SINTERING ZONE AS INPUT OF RAW MATERIAL ARE DESCRIBED. IN ADDITION TO CHECKS OF TEMPERATURE AND RAW MATERIAL INPUT, THE PRESSURE IN THE HOT AND COLD HEADS OF THE FURNACE, RAREFACTION IN THE SMOKESTACK, GAS FLOW RATE, AND GAS PRESSURE ARE CHECKED. A STRUCTURAL DIAGRAM OF THE AUTOMATIC CONTROL SYSTEM IS PRESENTED. THE AUTOMATIC TESTING AND CONTROL SYSTEM FOR THE ROTARY KILN HAS BEEN CHECKED AT THE ZAPDROG REFRACTORY PLANT. THE RESULTS OF THE TESTS HAVE CONFIRMED THE EFFECTIVENESS AND ECONOMIC EXPEDIENCY OF USING THIS SYSTEM FOR AUTOMATION OF ROTARY KILN OPERATION.

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KSENDZOVSKIY, V. R., ~~GOZENBUK, L. G.~~, SHALIMAN, L. N.

"Automatic Control System for the Process of Roasting Materials in a Rotary Kiln"

Moscow, Ogneupory, No 3, Mar 70, pp 20-25

Abstract: A rotary kiln can be looked upon as a sequence of two objects for automatic control. The first section heats the material to the sintering temperature by heat exchange between the flows of the heat transfer medium and the material. The physical and chemical processes of sintering occur in the second section. Therefore, the automatic control system for a rotary kiln must consist of two systems. The measuring devices used in such a dual system to measure temperature in the sintering zone at input of raw material are described. In addition to checks of temperature and raw material input, the pressure in the hot and cold heads of the furnace, rarefaction in the smokestack, gas flow rate, and gas pressure are checked. A structural diagram of the automatic control system is presented. The automatic testing and

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